SOV/20-123-2-27/50

5(3)

AUTHORS: Samokhvalov, G. I., Shakhova, M. K., Preobrazhenskiy, N. A.

TITLE: The Synthesis of Rutin (Sintez rutina)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 2, pp 305-307 (USSR)

ABSTRACT: Rutin, or quercetin-3-"rutinoside" (VII), is the active substance of vitamin P. The importance of rutin is great, as (besides other substances) it can decrease the permeability and fragility of the capillaries (especially with ascorbic acid). As quercetin (V) has 5 hydroxyl groups in the molecule its production from its 3-glucosides is very difficult. Besides, there are some more difficulties (Refs 1-4) so that the synthesis of rutin or other quercetin-3-disaccharides remained unknown until recently. The authors describe the synthesis of rutin from quercetin and acetobromo rutinose (see Scheme). The initial quercetin was synthesized according to reference 6, however, with the difference that the protection of the hydroxyl group in the vanillic acid was obtained by benzylation: triethylamine (Ref 7) was used as a condensing agent. The disaccharide: α-acetobromo-β-1-L-rhamnosido-6-D-glucose,

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The Synthesis of Rutin SOV/20-123-2-27/50

α-acetobromo-rutinose was synthesized according to reference 8 from acetobromo-rhamnose and acetochloroglucose. The results of the paper chromatography, and the comparison of the ultraviolet absorption spectra (Fig 1) showed a complete identity of synthesized and natural rutin. As quercetin under the influence of liquid ammonia partly decomposes admixtures with an ultraviolet absorption maximum occur in the chromatograms of synthetic rutin; these admixtures characterize the quercetin decomposition products. The rutin synthesis mentioned above is the final stage of its complete synthesis. An experimental part with the usual data follows. There are 2 figures and 8 references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut (All-Union Scientific Vitamin Research Institute)

PRESENTED: June 30, 1958, by A. N. Nesmeyanov, Academician

Card 2/3

5(3) SOV/20-123-4-37/53

AUTHORS: Ch'en Ch'an-pei, Yevstigneyeva, R. P., Preobrazhenskiy, N. A.

TITLE: Synthesis of the Alkaloid Cinchonamine (Sintez alkaloida tsinkhonamina)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 4, pp 707 - 706 (USSR)

ABSTRACT: The alkaloid of the cinchona bark is a link between the cinchona alkaloids of the quinoline series and those of the indole series (Refs 1,2). In the present paper the synthesis of the optically active cinchonamine is described. The authors used a scheme for the production of the pyridine analog of cinchonamine (Ref 3), which had been devised by them earlier. Ethyl ester of 3-vinyl-quinuclidine carboxylic acid-6 (I) is condensed with γ-butyro lactone (II) in dry benzene in the presence of sodium ethylate at 40-85°. After an appropriate treatment α-(3-vinyl-quinuclidoyl-6)-γ-butyro lactone (III) is formed as a colorless, viscous, oily substance. It is very soluble in ether, alcohol, benzene, and water; its melting point is 152-153°/0.5 mm, its yield 35.7%. On heating the

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Synthesis of the Alkaloid Cinchonamine

substance (III) with 2 n sulfuric acid at 120° the lactone cycle is split and a decarboxylation under the formation of ω-oxy-propyl-α-(3-vinyl-quinuclidyl-6)-ketone (IV) takes place; yield 70.3%. The obtained light yellow liquid is heated with 10% phenyl hydrazine solution in alcohol for 8 hours. The formed phenyl hydrazine (V) of the substance (IV) is a viscous, yellow oil; its yield is 76.5%. After further appropriate treatment the cinchonamine is formed as colorless crystals which are very soluble in alcohol, ether, chloroform and benzene, less soluble in cold alcohol and petroleum ether, and difficult to dissolve in water. The mentioned constants of the synthesized optically active cinchonamine fully agree with those of the natural substance mentioned in publications (Ref 5). The reaction devised by the authors opens the way for the production of other alkaloids of this series. There are 5 references, 2 of which are Soviet.

Synthesis of the Alkaloid Cinchonamine SOV/20-123-4-37/53

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M. V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov)

PRESENTED: July 31, 1958, by A. I. Oparin, Academician

SUBMITTED: July 30, 1958

Card 3/3

PREOBRAZHENSKIY, N. A. (Prof., Dr.)

, "Vitamin B12 in Feeding and Therapy."

report to be submitted at the (Provisional Programme of the) 3rd International Vitamin-Symposium, Poznan, 21-24 Sep 1959.

BEREZOVSKIY, Vladimir Mironovich; NAZAROV, I.N., akademik, retsenzent; PREOBRAZHENSKIY, N.A., prof., doktor khim.nauk, zasluzhennyy deyatel' nauki, spetsred.; KALMENS, R.I., red.; BELIKOVA, L.S., red.

[Chemistry of vitamins] Khimiia vitaminov. Moskva, Pishchepromizdat, 1959. 599 p. (MIRA 13:1)
(VITAMINS)

5(3)

AUTHORS: Sarycheva, I. K., Molotkovskiy, Yu. G., Vorobjeva, G. A., Preobrazhenskiy, N. A.

SOV/79-29-4-16/77

TITLE: Complete Synthesis of 2-Methyl-3-phytyl-naphthoquinone-1,4 Vitamin K_1 (Polnyy sintez 2-metil-3-fitilnaftokhinona-1,4-vitamina K_1)

PERIODICAL Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1123-1126 (USSR)

ABSTRACT: In the present paper the synthesis of vitamin K_1(I) is described which is based on the condensation of 2-methyl-naphtho-hydroquinone-1,4 (II) with isophytol (III) in the presence of the ether compound of trifluoborate (Scheme) (Ref 7). The initial product for (III) was the pseudo-ionone (IV) (Ref 8). The pseudo-ionone is hydrogenated in the autoclave in the presence of the nickel catalyst to give compound (V) which is directly oxidized with the chromium mixture to (VI) without any separation. Compound (VI) is transformed with sodium acetylenide into (VII) which is converted by acetoacetic ester first into (VIII) and then via (IX) into (X). The condensation of (X) takes

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Complete Synthesis of 2-Methyl-3-phytyl-naphthoquinone-1,4 Vitamin K_1 SOV/79-29-4-16/77

place with sodium acetylenide with (XI) being formed. (XI) is reduced in the presence of the palladium catalyst to give isophytol (III). It must be mentioned that the physico-chemical constants of isophytol which was synthesized from linaloöl (Ref 11) were somewhat different from the given sample, obviously owing to the predominance of various diastereoisomeric forms in them. The product of the reaction of isophytol (III) with 2-methyl-naphthohydroquinone-1,4 (II) is the 2-methyl-3-phytyl-naphthohydroquinone-1,4 (XII). This is oxidized to give the end product (I), the vitamin K_1. The vitamin K_1 synthesized by the authors corresponds with the natural one as far as its properties are concerned; this was confirmed by the spectroscopic investigation (Fig). There are 1 figure and 13 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology)

SUBMITTED: March 4, 1958

Card 2/2

5(3)
AUTHORS: Sarycheva, I. K., Shustorovich, Ye. M., SOV/79-29-4-32/77
Vorob'yeva, G. A., Preobrazhenskiy, N. A.

TITLE: Synthesis of the 7-Cyano-2,6-Dimethyl, and 2,3,6-Trimethyl-Heptadienes-2,6 of the Nitriles of the Geranic and 3-Methyl Geranic Acids (Sintez 7-tsiano-2,6-dimetil- i 2,3,6-trimetil-geptadiyenov-2,6, nitrilov geraniyevoy i 3-metilgeraniyevoy kislot)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1189-1192 (USSR)

ABSTRACT: In the terpene series the synthesis of the nitrogenous compounds is of importance since they (e. g. amines and nitriles) render possible the synthesis of geraniol, citral, geranic acid and numerous homologues (Ref 1). The present article contains a description of the synthesis of the nitriles of geranic acid (I,R=H) and 3-methyl geranic acid (I,R=CH_3) starting from 2 -methylheptene-2-on-6 (IV,R= H) and, accordingly, from 2,3-dimethylheptene-2-on-6 (IV,R=CH_3) (Pattern 1). Compound (IV,R=H) is synthesized as initial

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Synthesis of the 7-Cyano-2,6-Dimethyl, and 2,3,6-Trimethyl Heptadienes-2,6 of the Nitriles of the Geranic and 3-Methyl Geranic Acids

product from (II,R=H). This alcohol is transformed (Ref 2) into the bromide (III,R=H) which is condensed by acetic anhydride (Ref 3) in the presence of magnesium. In order to arrive at (I,R=H), (IV,R=H) is transformed with cyanoacetic acid. Compound (I,R=H) is also obtained by transformation of (IV) with ethyl cyanoacetate and subsequent selective saponification and decarboxylation of the compound (V, R=H) obtained. Similarly, the synthesis of the nitrile of the compound (I,R=CH_3) is carried out, namely by the transformation of (IV,R=CH_3) with the ethyl cyanoacetate. The structure of the initial product (I) was proved according to pattern 2. The divergency found between the physicochemical constants of the synthetic nitrile of geranic acid (I,R=H) and those of the nitrile prepared from natural citral (IX) (Ref 6) is explained by the differences in the relative stereoisomer contents (Ref 7) (last pattern). There are 7 references, 4 of which are Soviet.

Synthesis of the 7-Cyano-2,6-Dimethyl, and 2,3,6-Trimethyl Heptadienes-2,6 of the Nitriles of the Geranic and 3-Methyl Geranic Acids

SOV/79-29-4-32/77

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology)

SUBMITTED: March 31, 1958

Card 3/3

SOV/79-29-4-33/77

5(3)
AUTHORS: Tolkachev, O. N., Voronin, V. G., Preobrazhenskiy, N. A.

TITLE: Synthesis of the Dimethyl Ether of the Alkaloid (±) Tubocurarine Iodide (Sintez dimetilovogo efira alkaloida (±) tubokuraninyodida)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1192-1197 (USSR)

ABSTRACT: The present paper describes the synthesis of these alkaloids according to the scheme mentioned which has rendered possible the synthesis of isomeric tertiary bases, the curines, and the salts of quaternary bases, the curarines. The scheme is based on the successive development of the system which contains elements of natural alkaloid the final stage of which is the formation of the second oxygen bridge: Compound (V) obtained by catalytic reduction of the relevant ω-nitrostyrene (Ref 7) is condensed with (VI) to (VII). The potassium salt of (VII), when transformed with the esters of (VIII) in the presence of copper, results in the compounds (IX,R=CH_3 or C_2H_5; R'=$CH_2C_6H_5$). The products obtained are saponified into the corresponding acid (IX,R=H, R'=$CH_2C_6H_5$) and debenzylated by Pd into the amide (IX,R=R'=H). The amide (X,R=H) results from (IX,R=CH_3 or C_6H_5; R'=$CH_2C_6H_5$)

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Synthesis of the Dimethyl Ether of the Alkaloid (±) Tubocurarine Iodide

and (XI) as well as from (IX,R=H,R'=$CH_2C_6H_5$) and (XI). The compound (X,R=H) is methylated with methyl iodide to form compound (X,R=CH_3) which is then cyclized with phosphorus oxychloride. In this process a mixture of phosphates and chlorides forms, from which the base (XII) is obtained. The benzyl-oxy group of this base is saponified and the resultant quinoline (XIII) is then transformed by heat into (XIV) in the presence of copper, potash, and pyridine. After the reduction with zinc dust, (XIV) is methylated to form (XVI). Compound (XVI) changes with methyl iodide into the dimethyl ether (±) of tubocurarine iodide (IV). Its ultraviolet spectrum is identical with the corresponding spectrum of the same ether of natural (±)-tubocurarine iodide. The test mixture of both products did not result in a depression of the melting point. There are 7 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology)

SUBMITTED: February 14, 1958

5(3) SOV/79-29-5-46/75

AUTHORS: Tolkachev, O. N., Cherkasova, A. A., Preobrazhenskiy, N. A.

TITLE: Research in the Synthesis of Curare Alkaloids. (Sinteticheskiye issledovaniya v oblasti kurarealkaloidov). Synthesis of 2,3-Dimethoxy-5-Cyanomethyl-4'-Carboxy Diphenyl Ether (Sintez 2,3-dimetoksi-5-tsianmetil-4'-karboksidifenilovogo efira)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1627-1631 (USSR)

ABSTRACT: The compound (V) mentioned in the title - an intermediate product in the synthesis of tubocurarine and isochondodendrine - was prepared according to the following reaction scheme:

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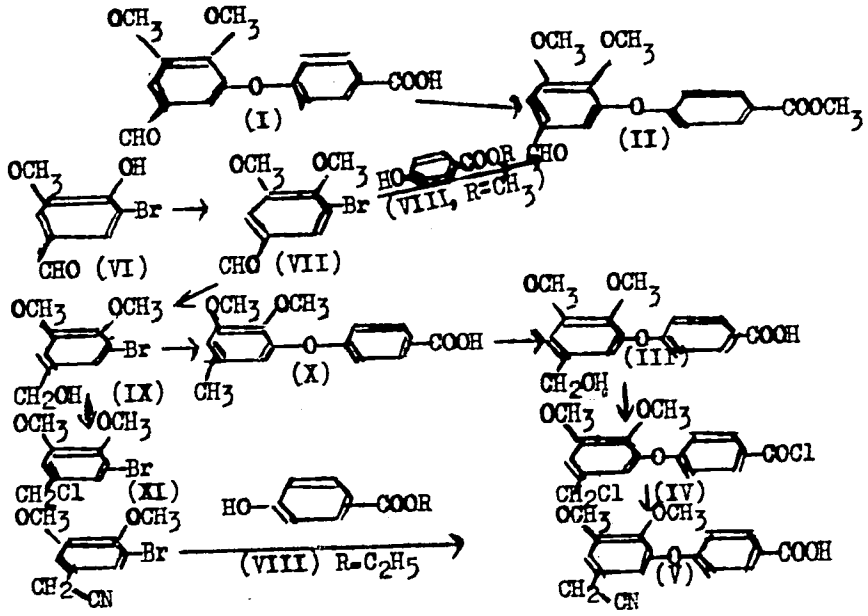
Research in the Synthesis of Curare Alkaloids. SOV/79-29-5-46/75
Synthesis of 2,3-Dimethoxy-5-Cyanomethyl-4'-Carboxy Diphenyl Ether



Card 2/4 3

Research in the Synthesis of Curare Alkaloids. SOV/79-29-5-46/75
Synthesis of 2,3-Dimethoxy-5-Cyanomethyl-4'-Carboxy Diphenyl Ether

As may be observed from the scheme, the transformation of the functional groups may take place in various stages of synthesis. Compound I is methylated to II by way of methyl iodide or dimethyl sulphate. This (II) is identical with the product of condensation of bromoveratrole aldehyde (VII) with the methyl ester of 4-oxy-azo-benzoic acid (VIII). The reduction of the aldehyde (according to Cannizzaro) leads to compound III. The same compound is obtained (besides compound X) by condensation of bromo veratroalcohol with VIII. Compound III is converted to IV with thionyl chloride and cyanized to V. The same compound, however, may also be obtained from XII with 4-oxy-benzoic acid-ethyl-ester. The intermediate products were obtained as follows: vanillin was brominated with dioxan dibromide to 5-bromo vanillin (VI). This was methylated to VII and reduced to IX, converted to XI by means of thionyl chloride and cyanized to XII. The experimental describes the reactions carried out. There are 4 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy promyshlennosti
(Moscow Institute of Fine Chemical Industry)

Card 3/4 3

AUTHORS: Voronin, V. G., Tolkachev, O. N., Preobrazhenskiy, M. A.

SOV/20-122-1-20/44

TITLE: The Synthesis of Racemic Tubocurarine (Sintez ratsemicheskogo tubokurarina)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 1, pp 77 - 79 (USSR)

ABSTRACT: The effective substance of blow-pipe curare are the alkaloids of the bisbenzyl tetrahydro-isoquinoline group of unsymmetrical structure. Those alkaloids are distinguished from one another by the degree of methylation of nitrogen atoms and phenol hydroxyls. The following are secondary and tertiary bases: l-chondrofoline, d- and l-curarine and some others. The main representative of quarternary ammonium salts is d-tubocurarine chloride (tubocurarine, curarine) (X). Its physiological activity is great since it causes the relaxation of the cross-striated muscles. In spite of intensive investigations it has hitherto remained impossible to prove the chemical structure

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of tubocurarine by synthesis. The authors brought about their scheme of synthesis of phenol alkaloids of the chondodendrine series by a subsequent structure of the system containing the elements of natural alkaloid (scheme on page 78). The process of the synthesis is described in detail. Its final stage is the formation of a macrocyclic system by closing the second ether binding to a chlorine hydrate (VII) with the melting point from 176-180°. By subsequent reduction it was possible to isolate 3 isomeric norchondrofolines (VIII):Chlorine hydrates: 1) With a melting point from 174 - 176°, 2) from 194-196° and 3) from 185-187,5°. The two former were changed to bi-tertiary bases by methylation. With respect to their composition the bases corresponded to chondodendrine (IX). On the strength of the carried out reactions the mentioned synthetic compound may be regarded as a racemate of the natural alkaloid.

The Synthesis of Racemic Tubocurarine SOV/20-122-1-20/44

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova (Moscow Institute of Fine Chemical Technology imeni M.V.Lomonosov)

PRESENTED: April 30, 1958, by A.N.Nesmeyanov, Member, Academy of Sciences, USSR

SUBMITTED: April 28, 1958

Card 3/3

5 (3)

AUTHORS: Vorob'yeva, G. A., Sarycheva, I. K., Preobrazhenskiy, N. A.

SOV/79-29-7-46/83

TITLE: Synthesis of 2,6,10,14,18,22-Hexamethyltetracosahexaen-2,6,10,14,18,23-ol-22, the Farnesylnerolidol (Sintez 2,6,10,14,18,22-geksametiltetrakozageksayen-2,6,10,14,18,23-ola-22 farnezilnerolidola)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2314 - 2318 (USSR)

ABSTRACT: Farnesylfarnesol $C_{30}H_{50}O$, a component of the natural β-phylloquinone (vitamin K_2) (Ref 1), belongs to the group of isoprene polymers occurring in nature, such as rubber, gutta-percha, solanesol ($C_{50}H_{80}O$), and other polyterpenes. The physico-chemical and biological properties of these compounds are connected with their stereo-isomerism, caused by the presence of double bonds and methyl groups. The cis-trans isomerism complicates the synthesis of similar isoprenoid compounds, as conversions of the spatial configuration in the course of a reaction leading to mixtures of the isomers have frequently been observed.

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Synthesis of 2,6,10,14,18,22-Hexamethyltetracosa-hexaen-2,6,10,14,18,23-ol-22, the Farnesylnerolidol SOV/79-29-7-46/63

In the present paper the synthesis of farnesylnerolidol (I) by condensation of β,γ-unsaturated alcohols with acetoacetic ester (Ref 3) is described. Nerolidol (II) (Ref 4) is used as an initial substance. The stepwise building up of the isoprene links of farnesylnerolidol (I) was effected by the application of three similar methods, which included the synthesis of the ketones by means of acetoacetic ester or acetylacetone, condensation with acetylene, and selective hydrogenation (Scheme). Compound (II) interacted with acetoacetic ester to yield (III), (III) being converted to (IV) by condensation with sodium acetylide. Pd-catalyzed selective hydrogenation of (IV) gave (V). This alcohol (V) was then submitted to a similar reaction cycle. Thus, the compounds (VI), (VII), and (VIII) were obtained successively. Farnesylnerolidol was finally synthesized from (VIII) by way of the intermediates (IX) and (X). There are 5 references, 1 of which is Soviet.

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Synthesis of 2,6,10,14,18,22-Hexamethyltetracosa-hexaen-2,6,10,14,18,23-ol-22, the Farnesylnerolidol SOV/79-29-7-46/83

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M. V. Lomonosova (Moscow Institute for Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: March 27, 1958

Card 3/3

AUTHORS: Sarycheva, I. K., Myagkova, G. I., Preobrazhenskiy, N. A.

SOV/79-29-7-47/83

TITLE: Synthesis of Octadeca-9,12-dienoic-1-acid (Sintez oktadeka-diyen-9,12-ovoy-1 kisloty)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2318 - 2323 (USSR)

ABSTRACT: The authors succeeded in synthesizing the octadeca-9,12-dienoic-1-acid (I) by using undecyl-10-enic-1-acid and heptanal-1 (enanthole), the half products of various chemical industrial processes (Ref 6) (Scheme). The initial undecylenic acid was brominated to form acid (II), which gave acid (III, R=H) by the elimination of HBr. The corresponding methyl ester (III, $R=CH_3$) on treatment with phenylmagnesium bromide yielded compound (IV), which was dehydrated to give (V). Subsequent destructive oxidation of (V) gave the acid (VI, R=H). The methyl ester (VI, $R=CH_3$) was used as an intermediate in the synthesis of linoleic acid (I). For the synthesis of the second structural element in this synthesis, namely compound (X), enanthole was used. The latter was transformed into 1,1-dichloroheptane (VII) and then into

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Synthesis of Octadeca-9,12-dienoic-1-acid SOV/79-29-7-47/83

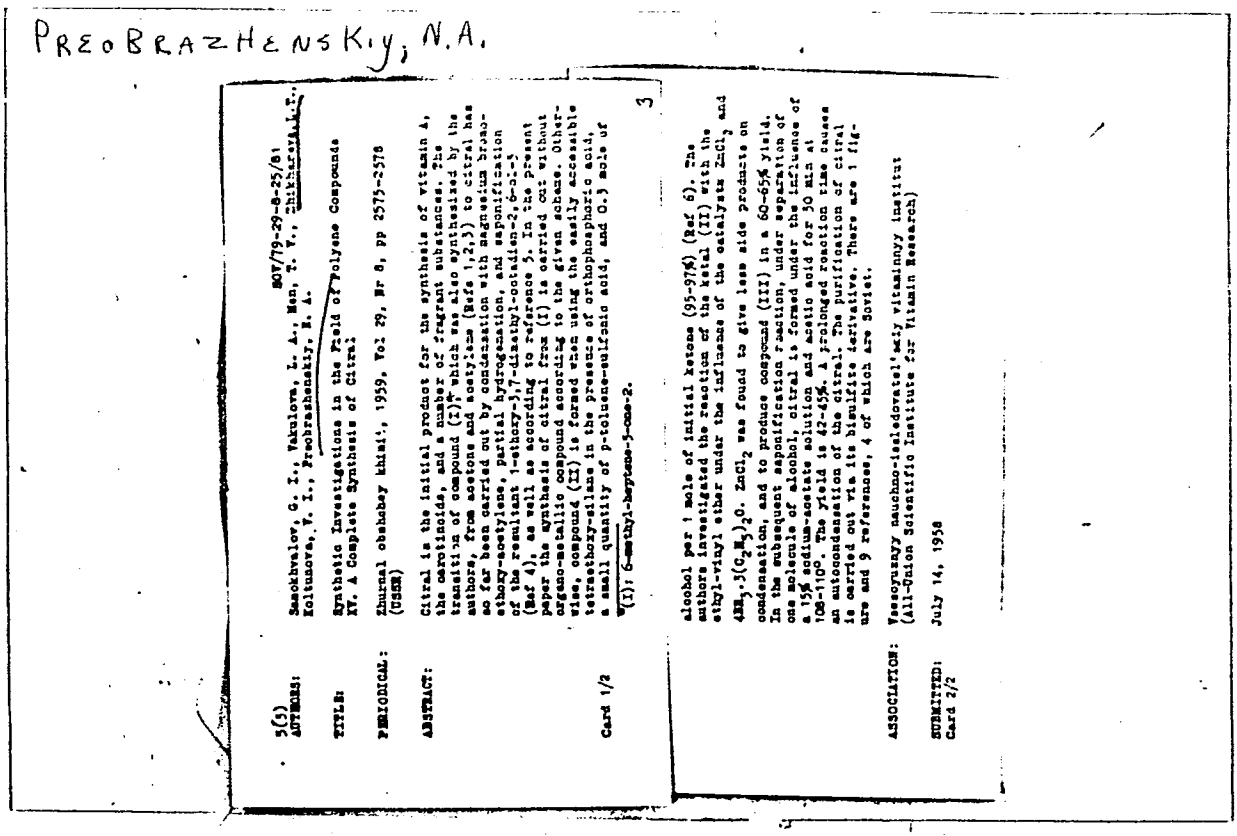
heptyne-1 (VIII). The organomagnesium compound of (VIII) was caused to react with formaldehyde and the resulting compound (IX) was treated with phosphorus tribromide. By condensation of the magnesium derivative of the methyl ester of 9-decynoic-1-acid (VI) with (X) in the presence of copper (I) chloride substance (XI) was obtained. Selective hydrogenation of the methyl ester of (XI) and subsequent saponification (XII) yielded linoleic acid (I). The structure of (I) was verified by its physicochemical constants and spectroscopic data (Figs 1,2). There are 2 figures, 1 table, and 7 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M. V. Lomonosova (Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov)

SUBMITTED: June 16, 1958

Card 2/2

PREOBRAZHENSKIY, N.A.



SOV/79-29-8-25/81

5(3)
AUTHORS: Smokhvalov, G. I., Yakulova, L. A., Man, T. V., Shikhareva, K. T., Koltunova, V. I., Preobrazhenskiy, N. A.

TITLE: Synthetic Investigations in the Field of Polyene Compounds XV. A Complete Synthesis of Citral

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 8, pp 2575-2578 (USSR)

ABSTRACT: Citral is the initial product for the synthesis of vitamin A, the carotinoids, and a number of fragrant substances. The transition of compound (I), which was also synthesized by the authors, from acetone and acetylene (Refs 1,2,3) to citral has so far been carried out by condensation with magnesium bromethoxy-acetylene, partial hydrogenation, and saponification of the resultant 1-ethoxy-3,7-dimethyl-octadien-2,6-ol-5 (Ref 4), as well as according to reference 5. In the present paper the synthesis of citral from (I) is carried out without organo-metallic compound according to the given scheme. Otherwise, compound (II) is formed when using the easily accessible tetraethoxy-silane in the presence of orthophosphoric acid, a small quantity of p-toluene-sulfonic acid, and 0.3 mole of (I): 6-methyl-heptene-5-one-2.

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alcohol per 1 mole of initial ketone (95-97%) (Ref 6). The authors investigated the reaction of the ketal (II) with the ethyl-vinyl ether under the influence of the catalysts $ZnCl_2$ and $AlBr_3$; $3(C_2H_5)_2O \cdot ZnCl_2$ was found to give less side products on condensation, and to produce compound (III) in a 60-65% yield. In the subsequent saponification reaction, under separation of one molecule of alcohol, citral is formed under the influence of a 15% sodium-acetate solution and acetic acid for 30 min at 100-110°. The yield is 42-45%. A prolonged reaction time causes an autocondensation of the citral. The purification of citral is carried out via its bisulfite derivative. There are 1 figure and 9 references, 4 of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut (All-Union Scientific Institute for Vitamin Research)

SUBMITTED: July 14, 1958

Card 2/2

5.3610

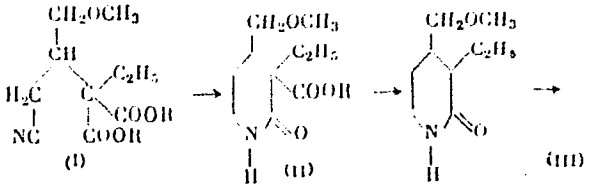
77385
SOV/79-30-1-46/78

AUTHORS: Malina, Yu. F., Yevstigneyeva, R. P., Preobrazhenskiy, N. A.

TITLE: Synthesis of cis-Homocincholoipon

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 1, pp 213-216 (USSR)

ABSTRACT: The synthesis of cis- and trans-homocincholoipons based on diethyl ester of β-(α'-cyanopropyl)glutaric acid was reported previously (Izv. vyssh. uchebn. zaved., MVO SSSR, Khimiya i khim. tekhnolog., 1958, Nr 5, p 46). The present study deals with the synthesis of cis-homocincholoipon (VI; R'=H) based on ethyl ester of the mononitrile of α-ethyl- α -carboethoxy- β -methoxy-methylglutaric acid (I; R=C_2H_5):



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Synthesis of cis-Homocincholoipon

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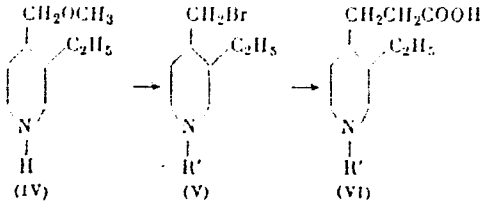
SOV/79-30-2-46/73



The reduction of ester (I) in ethanol in the presence of Raney nickel gave 3-ethyl-3-carboethoxy-4-methoxy-methylpiperidone-2 (II; R=C_2H_5) in two isomeric forms: (1) bp 175-177° C at 1 mm; and (2) bp 210-215° C (1 mm). Fraction 175-177° C was used in the subsequent reactions. Saponification of piperidone (II) (R = C_2H_5) with KOH in water-alcohol solution gave the acid (II; R = H) which on decarboxylation gave 3-ethyl-4-methoxy-methylpiperidone-2 (III). Reduction of (III) with lithium aluminum hydride in dioxane gave 3-ethyl-4-

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Synthesis of cis-Homocincholoipon

77385
SOV/79-30-1-46/78

methoxymethylpiperidine (IV). The latter, on treatment with 47% hydrobromic acid, gave 1-nitroso-3-ethyl-4-bromomethylpiperidine (V; R'=NO), which on condensation with sodium malonate, saponification, and decarboxylation gave 1-nitroso-3-ethyl-piperidyl-4-propionic acid (VI; R'=NO). Finally, the elimination of the nitroso-group by heating the latter acid with cuprous chloride gave cis-homocincholoipon (VI; R' = H; mp 172-172.5° C). The same starting materials and same type of reactions can be applied also for the synthesis of pilocarpine alkaloids. Ester I ($R=C_2H_5$) on treatment with methanol saturated with HCl gave methyl ester of γ,γ-dicarboethoxy-β-methoxymethylcaproic acid (VII). The latter was hydrolyzed with HCl or 40% hydrobromic acid, and yielded a mixture of diastereomeric α-ethylhomo-paraconic acids (VIII; mp 48-60° C), one of which was identified as racemic homopilopic acid (mp 102-103° C), the other as racemic homoisopilopic acid (mp 73-74° C).

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Synthesis of cis-Homocincholoipon

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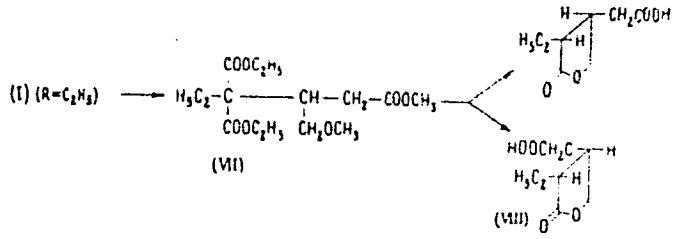


There are 2 references, 1 U.S., 1 Soviet. The U.S. reference is: C. F. Koelsch, J. Am. Chem. Soc., 68, 146 (1946).

ASSOCIATION: Moscow Institute of Fine Chemical Technology (Moskovskiy institut tonkoy khimicheskoy tekhnologii)

SUBMITTED: December 26, 1958

Card 4/4

5.3600

[illegible]

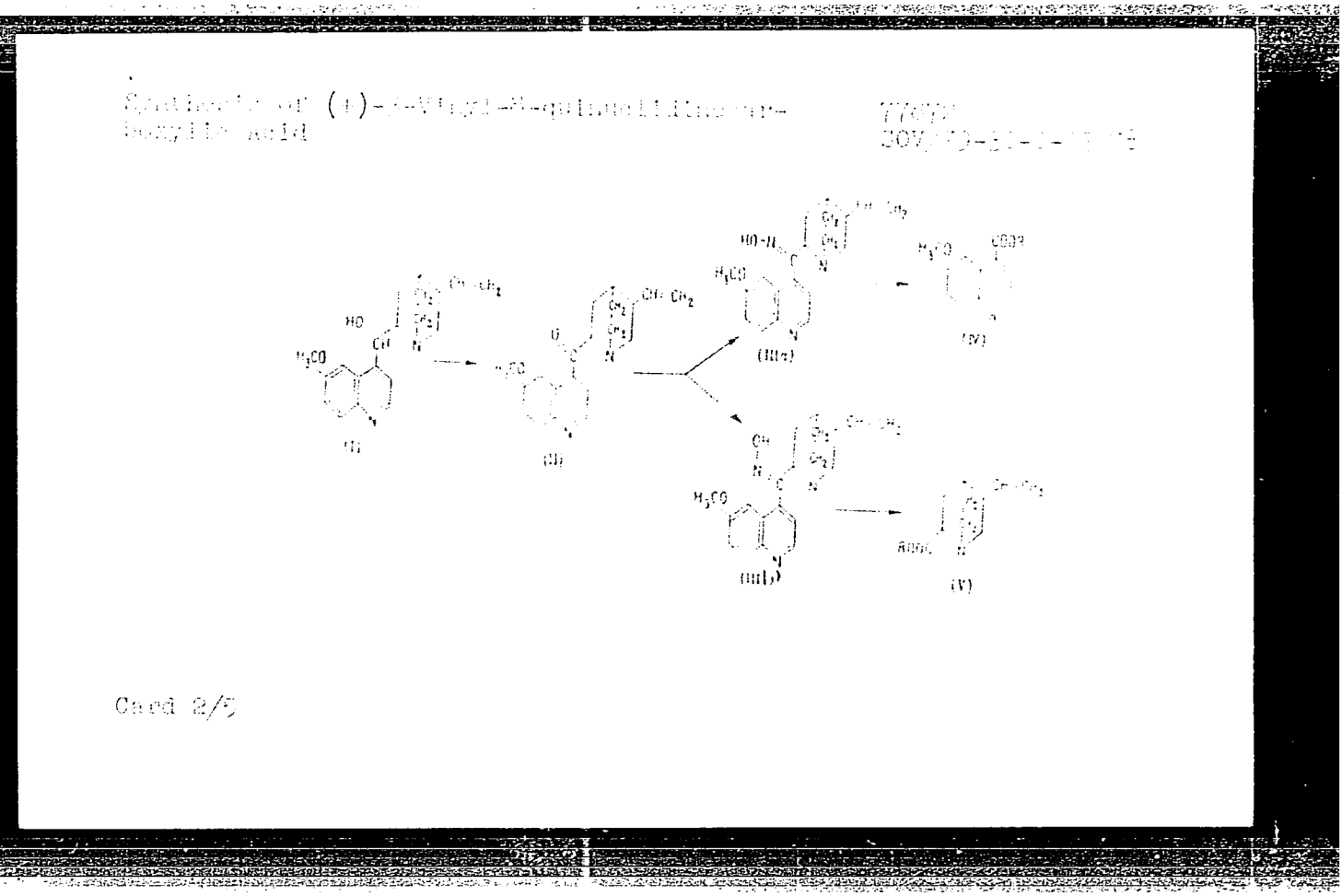
AUTHORS: Yevstigneyeva, R. P., Chzhen Chen-[illegible], Preobrazhenskiy, N. A.

TITLE: Synthesis of (+)-3-Vinyl-8-quinuclidine carboxylic Acid

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 473-476 (USSR)

ABSTRACT: The authors developed a new method for the synthesis of (+)-3-vinyl-8-quinuclidine carboxylic acid from quinine through quininone and one of [illegible] (III) as intermediates of the ester of the [illegible] acid (V, R = C_2H_5). Rearrangement of the [illegible] (III) leads to the ester of quininic acid (IV, R = C_2H_5) (see scheme below for the reaction path).

Card 1/[illegible]



Card 2/5

Synthesis of (+)-3-Vinyl-8-quinuclidinecarboxylic Acid

77872
SOV/79-30-2-23/78

A mixture of oximes IIIa and IIIb is obtained by heating quininone and hydroxylamine hydrochloride in alcoholic solution of alkali, and is purified by dissolving the mixture in 5% KOH with subsequent liberation with carbon dioxide (mp 110-113°, $[\alpha]_D^{20}$ + 60°).

The esters were obtained from the mixture in the following way: To the mixture of oximes (71.4 g) dissolved in (560 ml) 5% KOH powdered benzenesulfonylchloride (49.9 g) is added slowly (within 1-1.5 hr), with constant stirring. The reddish-yellow oily precipitate is extracted with chloroform (400 ml), washed with NaOH and water, and dried with $NaHSO_4$. After vacuum distillation of chloroform, the precipitate is dissolved in alcoholic solution of KOH (117 g KOH in 250 ml CH_3OH and 88 ml H_2O) and heated at 100-105° for 44 hr. The residue is dissolved in water (400 ml) and extracted with benzene. The aqueous portion is neutralized with HCl to pH 7, filtered, concentrated by evaporation, and extracted with hot absolute alcohol.

Card 3/5

Synthesis of (+)-3-Vinyl-8-quinuclidinecarboxylic Acid

77672
SOV/79-30-2-23/78

After repeated addition of acidified alcohol and vacuum distillation (after prolonged standing of the alcohol solution) of the solvent, the residue is dissolved in water, neutralized with K_2CO_3, and extracted with ether. Distillation of the residue left after removal of ether results in two fractions--ethyl ester of 3-vinyl-8-quinuclidinecarboxylic acid (yield 14.8% (6.52 g), bp 80-82° (0.5 mm), d_4^{20} 1.0280) and ethyl ester of quininic acid (yield 5.1% (2.5 g), bp 138-142° (0.5 mm)). The 3-vinyl-8-quinuclidinecarboxylic acid is obtained from its ester (V) by letting the latter (0.31 g) stand with 10 ml of water for 10 days, with subsequent vacuum distillation of water (mp 204-206°). There are 3 figures; and 4 references: 1 Soviet, 1 Swiss, 1 U.K., 1 U.S. The U.K. and U.S. references are: T. A. Henry, K. S. Kirby, G. E. Shaw, J. Chem. Soc., 524, (1945); R. B. Woodward, N. L. Wendler, F. J. Brutschy, J. Am. Chem. Soc., 67, 1425 (1945).

Card 4/5

Synthesis of (+)-3-Vinyl-8-quinuclidinecarboxylic Acid

77872
307/79-30-2-33/78

ASSOCIATION: Moscow Institute of Fine Chemical Technology (Moscovskiy institut tonkoy khimicheskoy tekhnologii)

SUBMITTED: February 4, 1959

Card 5/5

5.3600

77973
SOV/79-30-2-24/78

AUTHORS: Hong-Tiung, Yevstigneyeva, R. P., Preobrazhenskiy, N. A.

TITLE: Studies in the Series of Isoquinoline Compounds. XVI. Synthesis of 4',5'-Dimethoxy-6-methyl-7-(1"-methyl-6", 7"-dimethoxy-1",2",3",4"-tetrahydroisoquinolyl)-3,4,5, 6,7,8-hexahydrobenzo-(1,2:1'2')-quinolizine

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 476-479 (USSR)

ABSTRACT: This is a continuation of the series of papers on emetine and its derivatives (Yevstigneyeva, R. P., et al., Zhur. obshchey khim., 28, 1184, 1190 (1958)). The path for the synthesis of 4'5'-dimethoxy-6-methyl-7-(1"-methyl-6",7"-dimethody-1",2",3",4"-tetrahydroisoquinolyl)-3,4,5,6,7,8-hexahydrobenzo-(1,2"1',2')-quinolizine (VII) (this compound differs from emetine only by the presence of methyl instead of ethyl group at C_6) is shown in the scheme below.

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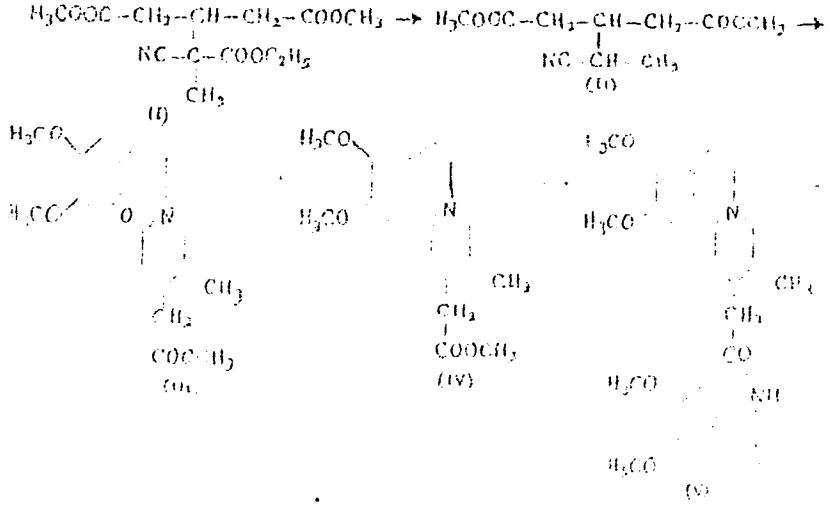
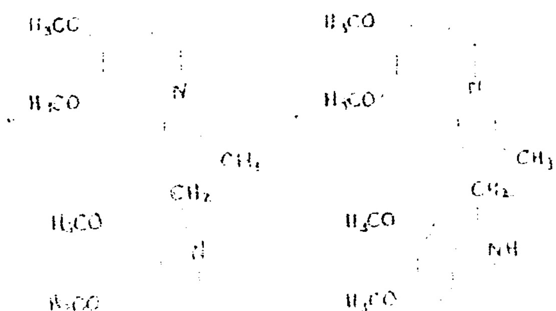
Studies in the Series of Isoquinoline Compounds. 77673
XVI. Synthesis of 4', 5'-Dimethoxy-6-methyl- SOV/79-30-2-24/78
7-(1"-methyl-6",7"-dimethoxy-1",2",3",4"-
tetrahydroisoquinolyl)-3,4,5,6,7,8-hexahydro-
benzo-(1,2:1'2')-quinolizine



Card 2/5

Studies in the Series of Isoquinoline Compounds. 77673
XVI. Synthesis of 4',5'-Dimethoxy-6-methyl-7-(1"-methyl-6",7"-dimethoxy-1",2",3",4"-tetrahydroisoquinolyl)-3,4,5,6,7,8-hexahydrobenzo-(1,2:1'2')-quinolizine

SOV/79-29-8-24/78



(VI) (VII)

The methyl ester of β-(α'-cyano-α'-carbethoxy)-ethylglutaric acid (I) (bp 162-163° (2 mm), d_4^{20} 1.1844, n_D^{20} 1.4620) was synthesized by reacting methyl ester

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Studies in the Series of Isoquinoline Compounds. XVI. Synthesis of 4',5'-Dimethoxy-6-methyl-7-(1"-methyl-6",7"-dimethoxy-1",2",3",4"-tetrahydroisoquinolyl)-3,4,5,6,7,8-hexahydro-benzo-(1,3:1'2')-quinolizine

77873
SOV/79-30-2-24/78

of β-(cyanocarbethoxy)-methylglutaric acid with methyl iodide in presence of sodium methoxide. Saponification and decarboxylation of I gives II (bp 126-127° (2 mm), d_4^{20} 1.1360, n_D^{20} 1.4489). Piperidone (III) (bp 198-204° (0.1 mm)) was obtained by catalytic hydrogenation of (II) in presence of homoveratrylamine. Cyclization of (III) by reacting it with phosphoryl chloride and subsequent reduction of the resulting chloride of tertiary amine results in methyl ester of 4',5'-dimethoxy-6-methyl-3,4,5,6,7,8-hexahydrobenzo-(1,2:1',2')-quinolizyl-7-acetic acid (IV) (mp 192-194°, λ_{max} 230 (log ε 4.19), 285 (log ε 3.77). λ_{min} 260 (log ε 3.28)). Heating of the latter with homoveratrylamine leads to the amide (V) (mp 89-91°, λ_{max} 225 (log ε 4.20), 280 (log ε 4.

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Studies in the Series of Isoquinoline Compounds. 77873
XVI. Synthesis of 4',5'-Dimethoxy-6-methyl- SOV/79-30-2-24/78
7-(1"-methyl-6",7"-dimethoxy-1",2",3",4"-
tetrahydroisoquinolyl)-3,4,5,6,7,8-hexahydro-
benzo-(1,3:1'2')-quinolizine

λ_{min} 255 (log ε 3.60), 345 (log ε 3.05)), which, upon cyclization effected by phosphoryl chloride, gives dihydroisoquinoline derivative (VI) (mp 59-60°, λ_{max} 225 (log ε 4.20), 280 (log ε 3.95), 305 (log ε 3.79), λ_{min} 250 (log ε 3.58), 300 (log ε 3.76)). The hydrochloride of the final compound (VII) (229-230°, λ_{max} 230 (log ε 4.09), 285 (log ε 3.77), λ_{min} 255 (log ε 2.92)) is obtained by reduction of (VI). There are 4 Soviet references.

ASSOCIATION: Moscow Institute of Fine Chemical Technology (Moskovskiy Institut tonkoy khimicheskoy tekhnologii)

SUBMITTED: February 23, 1959
Card 5/5

5.3610,5.3950

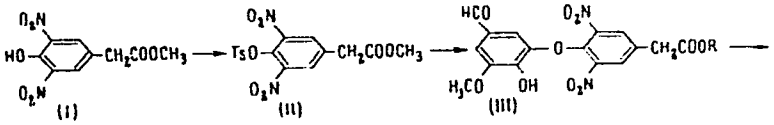
77874
SOV/79-30-2-25/78

AUTHORS: Tsizin, Yu. S., Preobrazhenskiy, N. A.

TITLE: Investigation in the Field of Diphenyl Ethers. Synthesis of 3,5-Diiodo-4-(2'-hydroxy-3'-methoxy-5'-formylphenoxy)-phenylacetic Acid

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 479-483 (USSR)

ABSTRACT: Synthesis of above acid (IX) was conducted as follows:



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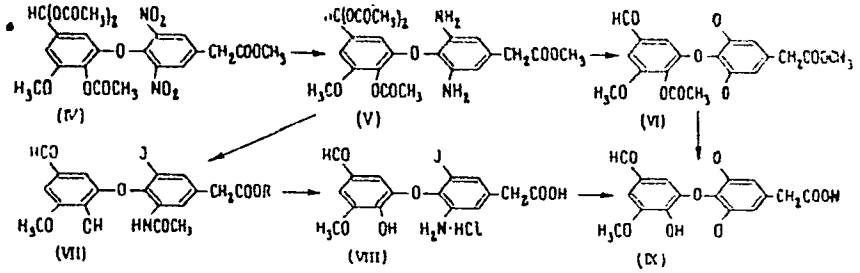
Investigation in the Field of Diphenyl Ethers. 77874
Synthesis of 3,5-Diiodo-4-(2'-hydroxy-3'- SOV/79-30-2-35/7
methoxy-5'-formylphenoxy)-phenylacetic Acid



Methyl 3,5-dinitro-4-hydroxyphenylacetate (I) was prepared from 3,5-dinitro-4-hydroxyphenylacetic acid and anhydrous methanol, in the presence of conc H_2SO_4, in 89% yield (mp 80-81°). (II) was obtained from (I) and p-toluenesulfonyl chloride in the presence of dimethylaniline, in 65.8% yield (mp 149-150°). (III) (R = CH_3) was obtained from (II) and 3-O-methylgallic aldehyde, in 43% yield (154-155°). (IV) was prepared from (III) and

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Investigation in the Field of Diphenyl Ethers. Synthesis of 3,5-Diiodo-4-(2'-hydroxy-3'-methoxy-5'-formylphenoxy)-phenylacetic Acid

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acetic anhydride, in the presence of conc H_2SO_4, in 97% yield (mp 131.5-132.5°, alcohol). (V) was prepared by hydrogenation of (IV) over Raney Ni, in 96.7% yield (mp 153-154°). (VI) was prepared from (V) and phosphoric acid (d 1.7), $NaNO_2$, H_2SO_4, KI, I_2, water, and chloroform, in 36.6% yield. For the preparation of (VII), (V) and glacial acetic acid were added to the mixture of $NaNO_2$ and H_2SO_4 (d 1.84). The reaction mass was added to a mixture of KI, I_2, urea, water, and chloroform, and after 5 minutes (VII) was obtained in 51.3% yield (mp 227-229°). (VIII) was obtained from (VII) and a mixture of glacial acetic acid, HCl (d 1.19) and water. (VIII) was added to the mixture of H_2SO_4 (d 1.84), glacial acetic acid, and $NaNO_2$. (IX) was obtained in 15.4% yield (mp 118-121°) by addition of the above reaction mass to the mixture

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Investigation in the Field of Diphenyl Ethers. Synthesis of 3,5-Diiodo-4-(2'-hydroxy-3'-methoxy-5'-formylphenoxy)-phenylacetic Acid

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of KI, I_2, urea, water, and chloroform. (IX) was obtained also from (VI), glacial acetic acid, and HCl (d 1.19) in 92.4% yield (mp 117-120°). There are 5 references, 3 U.K., 2 French. The U.K. references are: R. Pitt-Rivers, O. Thibault, Lancet, I, 285 (1955); J. H. Wilkonson, Bioch. J., 601 (1956); W. Bradley, R. Robinson, G. Schwarzenbach, J. Chem. Soc., 793 (1930).

ASSOCIATION: Moscow Institute of Fine Chemicals Technology (Moskovskiy institut tonkoy khimicheskoy tekhnologii)

SUBMITTED: January 31, 1959

Card 4/4

5.3630

78309
SOV/79-30-3-63/69

AUTHORS: Sarycheva, I. K., Vargafti[illegible]. N., Utkina, O. V., Preobrazhenskiy, N. A.

TITLE: Investigations of Lipides. IV. Study of Unsaturated Glycerides Using Paper Chromatography

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 3, pp 1048-1050 (USSR)

ABSTRACT: Identification and separation of synthetic glycerides was studied using paper chromatography. A previously described procedure (H. Schlenk and others, J. Am. Oil Chem. Soc., 34, 377, 1957) was used. For the monoglycerides of oleic (A), linoleic (B), and linolenic (C) acids, the following R_f were obtained: 0.70, 0.81, and 0.91. The R_f values obtained for the investigated triglycerides are given in Table 1 below.

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Investigations of Lipides. IV

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SOV/79-30-3-63/63

Table 1. R_f values for triglycerides.

Key: (a) Triglyceride; (b) Number of double bonds; (L) linoleic acid; (S) stearic acid; (O) oleic acid; (Ln) linolenic acid.

a	b	R_f
LSL (I)	4	0.10
SLL (II)	4	0.12
LOO (III)	4	0.16
SLnO (IV)	4	0.20
LOL (V)	5	0.24
LLL (VI)	6	0.26
SLnLn (VII)	6	0.32
LnSLn (VIII)	6	0.40
LLnL (IX)	7	0.47
LnLL (X)	7	0.49
LLnLn (XI)	8	0.53
LnLnLn (XII)	9	0.68

Card 2/3

Investigations of Lipides. IV

78309
SOV/79-30-3-63/69

It was shown that the investigated mono- and triglycerides can be separated and identified by the above method. There are 3 figures; 1 table; and 6 references, 2 U.S., 1 U.K., 1 Swiss, 2 Soviet. The U.S. and U.K. references are: D. Chapman, A. C. Davies, J. Chem. Soc., 1502 (1957); J. W. Dieckert, R. Reiser, J. Am. Oil. Soc., 33, 123 (1956); H. Schlenk, I. L. Gellerman, J. A. Tillotson, H. K. Mangold, J. Am. Oil. Chem. Soc., 34, 377 (1957).

ASSOCIATION: Moscow Institute of Fine Chemicals Technology (Moskovskiy institut tonkoy khimicheskoy tekhnologii)

SUBMITTED: January 6, 1959

Card 3/3

5(3)

AUTHORS: Tsizin, Yu. S., Tolkachev, O. N., Volkova, L. V., Preobrazhenskiy, N. A.

SOV/79-29-5-47/75

TITLE: Research in the Synthesis of Curare Alkaloids. (Sinteticheskiye issledovaniya v oblasti kurarealkaloidov). Synthesis of 2-Oxy-3-Methoxy-5-(β -Nitrovinyl)-4'-Carboxy Diphenyl Ether (Sintez 2-oksi-3-metoksi-5-(β-nitrovinil)-4'-karboksidifenilovogo efira)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1631-1635 (USSR)

ABSTRACT: The compound was obtained in two ways: a) condensation of 5-bromo vanillin with methyl- or ethyl ester of 4-oxy-benzoic acid or b) condensation of 3-methyl-"gallus" aldehyde with the methyl ester of 4-bromo benzoic acid. In the reaction according to a) the ethyl ester is preferable as methyl ester leads to an impure product by the formation of anisic acid and its ester. In order to obtain better yields, a new course of synthesis was worked out:

Research in the Synthesis of Curare Alkaloids. Synthesis of 2-Oxy-3-Methoxy-5-(β-Nitrovinyl)-4'-Carboxy Diphenyl Ether

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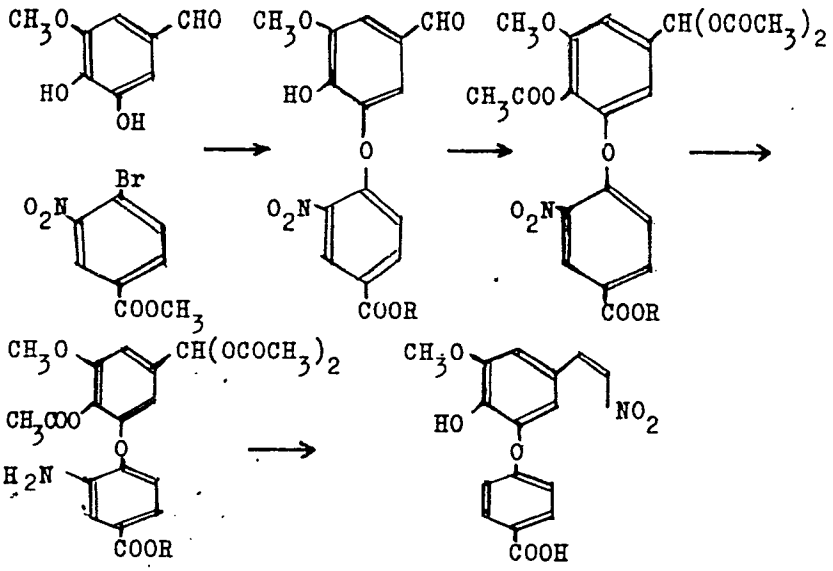

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Research in the Synthesis of Curare Alkaloids. Synthesis of 2-Oxy-3-Methoxy-5-(β-Nitrovinyl)-4'-Carboxy Diphenyl Ether

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The nitro group was reduced with nickel by catalysis, whereas the amino group was removed by reduction of diazonium salt with hypophosphoric acid. By reaction with nitro methane the compound mentioned in the title is obtained. The experimental part describes the reactions and gives the data concerning the compounds obtained. There are 4 references.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni Lomonosova (Moscow Institute of Fine Chemical Technology imeni Lomonosov)

SUBMITTED: May 5, 1958

Card 3/3

S/079/60/030/05/13/074
B005/B002

AUTHORS: Bazilevskaya, G. I., Baynova, M. S., Dyumayev, K. M., Preobrazhenskiy, N. A.

TITLE: Synthetic Investigations in the Field of Isomeric Cocaine. V. Synthesis of Methyl Ester of Tropanol-3α-carboxylic Acid-2β (Alloecgonine) and of Tropanol-3α-carboxylic Acid-2α (Allopseudoecgonine)

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 5, pp. 1458-1461

TEXT: The methyl ester of tropanol-3-carboxylic acid-2 may occur in 4 racemic and 8 optically active forms, whose structural formulas are given (I-IV and the corresponding antipodes and racemates). Only the two forms I and II occur in nature. No more than a few little informative data are contained in publications concerning the other two forms III and IV (Refs. 1,3,4). The authors of the present paper investigated a number of catalytic, electrochemical, and chemical methods of hydrogenation, in order to obtain the isomeric methyl esters of alloecgonine (racemate of III) and of allopseudoecgonine (racemate of IV) from the

Synthetic Investigations in the Field of Isomeric Cocaine. V. Synthesis of Methyl Ester of Tropanol-3α-carboxylic Acid-2β (Alloecgonine) and of Tropanol-3α-carboxylic Acid-2α (Allopseudoecgonine)

S/079/60/030/05/13/074
B005/B002

methyl ester of tropanone-3-carboxylic acid-2. It depends on the conditions of hydrogenation and on the nature of the reduction agent, as to which isomer is formed. In the catalytic hydrogenation of the methyl ester of tropanone-3-carboxylic acid-2 with Raney nickel as a catalyst, an oily substance was obtained, whose composition and molar refraction correspond to the methyl ester of ecgonine; other constants, however, do not agree with one another. The wide boiling range of the substance obtained and the fact that its iodine methylate already decomposes at 75° beneath its melting point, allow the conclusion to be reached that the substance synthesized is a mixture of isomers III and IV. Refractive index and specific weight of the oil obtained are lower than the corresponding values of ecgonine methyl ester. This is indicative of the fact that the mixture consists in the main of isomers with 2,3-trans-structure; furthermore, the good solubility of oil in ether allows the conclusion that the methyl ester of alloecgonine is chiefly obtained on the catalytic hydrogenation of the methyl ester of tropanone-3-carboxylic

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Synthetic Investigations in the Field of Isomeric Cocaine. V. Synthesis of Methyl Ester of Tropanol-3α-carboxylic Acid-2β (Alloecgonine) and of Tropanol-3α-carboxylic Acid-2α (Allopseudoecgonine)

S/079/60/030/05/13/074
B005/B002

acid-2 in the presence of Raney nickel. The amount of the simultaneously resulting isomeric methyl ester of allopseudoecgonine grows with the conditions of hydrogenation becoming more rigorous. The authors succeeded in separating the two isomeric methyl esters from each other by way of the fractionated distillation of the oil obtained and by the fractionated crystallization of the picrates. Hence, the described reduction of the methyl ester of tropanone-3-carboxylic acid-2 proceeds in steric orientation and leads to the formation of 3-hydroxy-axial isomers. All the operations (catalytic hydrogenation, preparation of picrates, fractionated crystallization, preparation of hydrochlorides of the two isomeric methyl esters) are described in great detail in an experimental part. Yields, melting points (boiling points respectively), and elementary analyses are specified for all of the compounds described. There are 8 references: 3 Soviet, 2 English, and 3 German.

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Synthetic Investigations in the Field of Isomeric Cocaine. V. Synthesis of Methyl Ester of Tropanol-3α-carboxylic Acid-2β (Alloecgonine) and of Tropanol-3α-carboxylic Acid-2α (Allopseudoecgonine)

S/079/60/030/05/13/074
B005/B002

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology)

SUBMITTED: June 2, 1959

Card 4/4

SAMOKHVALOV, G.I.; DAVYDOVA, L.P.; ZAKHARKIN, L.I.; KHORLINA, I.F.; VAKULOVA, L.A.; ZHIKHAREVA, L.T.; PREOBRAZHENSKIY, N.A.

Synthesis studies in the field of polyene compounds. Part 17: New synthesis of retinal or 9,13-dimethyl-7-(1,1,5-trimethyl-cyclohexen-5-yl)-7,9,11,13-nonatetraen-15-al. Zhur.ob.khim. 30 no.6:1823-1828 Je '60. (MIRA 13:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut.
(Nonatetraenal) (Olefins)

ZOTCHIK, N.V.; YEVSTIGNEYEVA, R.P.; PREOBRAZHENSKIY, N.A.

Synthesis of ethyl 4,6,9-triketocaprate. Zhur.ob.khim. 30 no.6:1828-1831 Je '60. (MIRA 13:6)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Capric acid)

CHEN' CHAN-BAY; YEVSTIGNEYEVA, R.P.; PREOBRAZHENSKIY, N.A.

Synthesis of the natural alkaloid (+)-cinchonamine. Zhur.ob. khim. 30 no.6:2085-2088 Je '60. (MIRA 13:6)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Cinchonamine)

BAZILEVSKAYA, G.I.; BAYNOVA, M.S.; DYUMAYEV, K.M.; PREOBRAZHENSKIY, N.A.

Investigations in the synthesis of isomeric cocaines. Part 6: Synthesis of methyl esters of 3β-tropanol-2α-carboxylic acid, pseudoecgonine, and 3β-tropanol-2β-carboxylic acid, ecgonine. Zhur.ob.khim. 30 no.6:2088-2091 Je '60. (MIRA 13:6)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Eggonine) (Pseudoecgonine)

PREOBRAZHENSKIY, N.A.; MAURIT, M.Ye.; BAZILEVSKAYA, G.I.; SMIRNOVA, G.V.; EL'MANOVICH, M.M.; VALAKHANOVICH, A.I.; PERSIYANOVA, E.

Synthesis of racemic stereoisomeric α-alkylparaconic acids. Zhur.ob.khim. 30 no.7:2250-2256 Jl '60. (MIRA 13:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Paraconic acid)

MAURIT, M.Ye.; SHTERNBERG, R.P.; PAKHOMOV, A.M.; BAZILEVSKAYA, G.I.; SMIRNOVA, G.V.; PREOBRAZHENSKIY, N.A.

Synthesis of optically active α-alkyl- β-butyrolactone-β-carboxylic (α-alkylparaconic) acids. Zhur.ob.khim. 30 no.7:2256-2259 Jl '60. (MIRA 13:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Paraconic acid)

ZOTCHIK, N.V.; YEVSTIGNEYEVA, R.P.; PREOBRAZHENSKIY, N.A.

Synthesis of the ethyl ester of 4,6,9,11,14-pentaketopentadecanoic acid and of the ethyl ester of 4,6,9,11,14,16,19-heptaketoeicosanoic acid. Zhur.ob.khim. 30 no.7:2259-2261 Jl '60. (MIRA 13:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Pentadecanoic acid) (Eicosanoic acid)

YEVSTIGNEYEVA, R.P.; GLYBINA, V.A.; OKART, Ye.V.; PREOBRAZHENSKIY, N.A.

Claisen condensation of esters of β-methyllevulinic acid.
Zhur.ob.khim. 30 no.7:2261-2263 Jl '60. (MIRA 13:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Levulinic acid)

ANDREYEV, S.V.; YEVSTIGNEYEVA, R.P.; MIRZABEKOV, A.M.; SPERANSKAYA, N.P.; PREOBRAZHENSKIY, N.A.

Similarity between the chemical structure and biological activity of ribonuclease and increpan. Zhur.ob.khim. 30 no.7:2433 Jl '60. (MIRA 13:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii i institut farmakologii i khimioterapii Akademii meditsinskikh nauk SSSR.
(Ribonuclease)

MIROSHNICHENKO, L.D.; YEVSTIGNEYEVA, R.P.; PREOBRAZHENSKIY, N.A.

Infrared absorption spectra and structure of some derivatives of β-diketones. Zhur.ob.khim. 30 no.8:2533-2536 Ag '60. (MIRA 13:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Ketones--Spectra)

GLYBINA, V.A.; OKART, Ye.V.; YEVSTIGNEYEVA, R.P.; PREOBRAZHENSKIY, N.A.

Synthesis of esters of 3,8,13-trimethyl-4,6,9,11,14-pentaketo-pentadecanoic and 2,8,13,18-tetramethyl-4,6,9,11,14,16,19-heptaketoeicosanoic acids. Zhur.ob.khim. 30 no.8:2536-2539 Ag '60. (MIRA 13:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Pentadecanoic acid)
(Eicosanoic acid)

SARYCHEVA, I.K.; SHATENSHTEYN, G.A.; PLESHAKOV, M.G.; PREOBRAZHENSKIY, N.A.

Synthesis of 3-methyl-1,16-hexadecanedioic acid. Zhur.ob.khim. 30 no.8:2539-2542 Ag '60. (MIRA 13:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Hexadecanedioic acid)

VASIL'YEV, A.Ye.; SARYCHEVA, I.K.; PREOBRAZHENSKIY, N.A.

Synthesis of 1,1-ethylenedioxy-5-hexyne. Zhur.ob.khim. 30 no.8:2542-2543 Ag '60. (MIRA 13:8)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Hexyne)

S/079/60/030/009/019/022/XX
B001/B066

AUTHORS: Pleshakov, M. G., Sarychëva, I. K., and Preobrazhenskiy, N. A.

TITLE: Synthetic Investigations in the Field of Polyacetylene Fatty Acids

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 9, pp. 2983 - 2985

TEXT: The synthesis of arachidonic acid (Refs. 1,2) and other higher polyacetylene acids of the aliphatic series is related to the synthesis of the poly-yne hydrocarbons and their derivatives. The authors synthesized 1-chloro undecadiyne-2,5 (IV), 2-(octadiyn-4',7'-yl)-1,3-dioxolane (VII), tridecatriyne-1,4,7 (VIII), the ethyl ester of 7-chloro heptynoic-5-acid (X), and the ethyl ester of eicosatetrainic-5,8,11,14 acid (I). 1-chloro undecadiyne-2,5 (IV) was obtained from heptyne-1 (II) (Refs. 3,4) with 1,4-dichloro butyne-2 (III) (Ref. 5) under the action of organomagnesium compounds. As initial product

Card 1/2

for the same method of synthesizing 2-(octadiyn-4',7'-yl)-1,3-dioxolane (VII), propargyl bromide (VI) (Ref. 6) and 2-(pentyn-4'-yl)-1,3-dioxolane (V) (Ref. 7) were used. Tridecatriyne-1,4,7 (VIII) results from compound (IV) and sodium acetylenide. The ethyl ester of the 7-chloro heptynoic-5 acid (X) is obtained by reacting the ethyl ester of β-bromo propionic acid (IX) (Ref. 8) with 1,4-dichloro-butyne-2 (III). Condensation of compound (VIII) with the ethyl ester of 7-chloro heptynoic-5 acid (X) eventually gives the ethyl ester of eicosatetrainic-5,8,11,14 acid (I). The molecular refraction of tridecatriyne-1,4,7 (VIII) is higher than the theoretical value, which is characteristic of such compounds (Ref. 9). There are 10 references: 4 Soviet, 3 US, 1 British, 1 French, and 1 Spanish.

ASSOCIATION: Moskovskiy institut tonkoy khimicheskoy tekhnologii (Moscow Institute of Fine Chemical Technology)

SUBMITTED: August 8, 1959

MIROSHNICHENKO, L.D.; FILIPPOVICH, Ye.I.; YEVSTIGNEYEVA, R.P.; PREOBRAZHENSKIY, N.A.

Prototropic rearrangement in the dipyrrylmethene series. Dokl. AN SSSr 134 no.5:1100-1103 O '60. (MIRA 13:10)

1. Moskovskiy institut tonkoy khimicheskiy tekhnologii im. M.V. Lomonosova. Predstavleno akademikom A.N.Nesmeyanovym.
(Methene)

SARYCHEVA, I.K.; SEREBRENNIKOVA, G.A.; ZVONKOVA, Ye.N.; MITROFANOVA, T.K.; MAURIT, M.Ye.; UTKINA, O.V.; PREOBRAZHENSKIY, N.A.

Synthesis of the main triglycerides of linoleic acid. Dokl. AN SSSR 135 no.3:617-619 N '60. (MIRA 13:12)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova. Predstavleno akad. A.N. Nesmeyanovym.
(Linoleic acid)

YEVSTIGNEYEVA, R.P.; TODOROVA, Ya.N.; PREOBRAZHENSKIY, N.A.

Synthesis of the ethyl ester of α-(β'-carboxyethyl)-β-methyllevulinic acid. Zhur. ob. khim. 31 no. 2:441-443 F '61. (MIRA 14:2)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Levulinic acid)

YEVSTIGNEYEVA, R.P.; TODOROVA, Ya.K.; PREOBRAZHENSKIY, N.A.

Synthesis of the ethyl ester of α-methyl-β- (β'-carboxyethyl) -levulinic acid. Zhur. ob. khim. 31 no. 2:443-445 F '61. (MIRA 14:2)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Levulinic acid)

ZHDANOVICH, Ye.S.; BYALAYA, Ye.I.; PREOBRAZHENSKIY, N.A.

Synthetic studies on coenzyme A. Part 1: Synthesis of β-aminopropionic acid, β-alanine. Zhur. ob. khim. 31 no. 2:446-447 F '61. (MIRA 14:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut.
(Alanine)

BALYAKINA, M.V.; ZHDANOVICH, Ye.S.; PREOBRAZHENSKIY, N.A.

Synthetic studies in the field of B_6-group vitamins. Part 1: Synthesis of 2-methyl-3-hydroxy-4-methoxymethyl-5- hydroxymethyl-pyridine. Zhur. ob. khim. 31 no. 2:542-544 F '61. (MIRA 14:2)

1. Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut.
(Pyridine) (Pyridoxine)

SAMOKHVALOV, G.I.; SHAKHOVA, M.K.; BUDAGYANTS, M.I.; VEYNBERG, A. Ya.; LUK'YANOVA, L.V.; PREOBRAZHENSKIY, N.A.

Synthetic studies of flavonoids. Part 2: Synthesis of 3- nitroflavanone. Zhur. ob. khim. 31 no.4:1147-1150 Ap '61. (MIRA 14:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy vitaminny institut.
(Flavanone)

MARKARYAN, E.A.; YEVSTIGNEYEVA, R.P.; PREOBRAZHENSKIY, N.A.

Structure of geissoschizine. Izv. AN Arm.SSR. Khim.nauki 14 no.5:511-512 '61. (MIRA 15:1)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Geissoschizine)

YEVSTIGNEYEVA, R.P.; RZHENZNIKOV, V.M.; PREOBRAZHENSKIY, N.A.

Fries rearrangement in the 2, 6-dinitrohydroquinone series. Zhur.ob. khim. 31 no.5:1534-1537 My '61. (MIRA 14:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Hydroquinone)

SEREBRENNIKOVA, G.A.; SMIRNOV, L.D.; SARYCHEVA, I.K.; PREOBRAZHENSKIY, N.A.

Lipides. Part 6: Synthesis of triglycerides of vegetable oils. Zhur.bo.khim. 31 no.5:1537-1540 My '61. (MIRA 14:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Glycerides)

TOLKACHEV, O.N.; PROKHOROV, A.B.; VORONIN, V.G.; KRIVKO, L.N.; PREOBRAZHENSKIY, N.A.

Synthetic studies of curare alkaloids. Part 7: Synthesis of 2-methoxy-4-(β-acylaminoethyl)-2'-alkoxy-5'-carbalkoxymethyldiphenyl esters. Zhur.ob,khim. 31 no.5:1540-1545 My '61. (MIRA 14:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Alkaloids) (Acetic acid)

BOGOSLOVSKIY, N.A.; SAMOKHVAOV, G.I.; PREOBRAZHNSKIY, N.A.

Complex lipids. Synthesis of α-(α'-oleoyl-β-stearoyl) cephalin. Zhur. ob. khim. 31 no.4:1143-1147 Ap '61. (MIRA 14:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut.
(Cephalins)

PLESHAKOV, M.G.; VASIL'YEV, A.Ye.; SARYCHEVA, I.K.; PREOBRAZHENSKIY, N.A.

Synthesis of 4, 7, 9, 12-hexadecatetrayne-1, 16-dicarboxylic acid. Zhur.ob.khim. 31 no.5:1545-1547 My '61. (MIRA 14:5)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Hexadecatetraynedicarboxylic acid)

MITROFANOVA, T.K.; ZVONKOVA, Ye.N.; SARYCHEVA, I.K.; IVASHCHENKO, S.P.; PREOBRAZHENSKIY, N.A.

Lipides. Part 7: Synthesis of some triglycerides from linseed and soybean oils. Zhur.ob.khim. 31 no.7:2178-2180 Jl '61. (MIRA 14:7)

(Glycerides)

SHVETS, V.I.; VOLKOVA, L.V.; PREOBRAZHENSKIY, N.A.

Lipides. Part 8: Synthesis of α,β-dilinoleoin. Zhur.ob.khim. 31 no.7:2181-2183 Jl '61. (MIRA 14:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Lipide)

SHVETS, V.I.; VOLKOVA, L.V.; PREOBRAZHENSKIY, N.A.

Complex lipides. Part 2: Synthesis of unsaturated and saturated α-cephalins. Zhur.ob.khim. 31 no.7:2184-2186 Jl '61. (MIRA 14:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Cephalins)

YEVSTIGNEYEVA, R.P.; MARKARYAN, E.A.; PREOBRAZHENSKIY, N.A.

Synthesis of methyl ester of indolo (1,2:2',3')3,4,5,6,7,8,-hexahydro-7-quinolizylacetic acid. Zhur.ob.khim. 31 no.7: 2187-2190 Jl '61. (MIRA 14:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Acetic acid)

SARYCHEVA, I.K.; SEREBRENNIKOVA, G.A.; MITRUSHKINA, L.I.; PREOBRAZHENSKIY, N.A.

New synthesis of 1,2,4-trimethyl-3,6-hydroquinone. Zhur.ob.khim. 31 no.7:2190-2192 Jl '61. (MIRA 14:7)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Hydroquinone)

ZHDANOVICH, Ye.S.; GALKIN, A.F.; CHEKMAREVA, I.B.; BAULINA, G.A.; PREOBRAZHENSKIY, N.A.

Production of pyridinecarboxylic acid. Trudy VNIVI 8:11 '61. (MIRA 14:9)

1. Laboratoriya sinteza vitaminov gruppy B Vsesoyuznogo nauchno-issledovatel'skogo vitaminnogo instituta.
(Pyridinecarboxylic acid)

BALYAKINA, M.V.; ZHDANOVICH, Ye.S.; LUK'YANOVA, P.V.; PREOBRAZHENSKIY, N.A.

Study of pyridoxine hydrochloride. Trudy VNIVI 8:12 '61. (MIRA 14:9)

(Pyridoxine)

ZHDANOVICH, Ye.S.; CHEKMAREVA, I.B.; NOVOPOKROVSKAYA, T.S.; LISNYANSKIY, I.M.; PREOBRAZHENSKIY, N.A.

Production of the amide of nicotinic acid (through esters). Trudy VNIVI 8:22 '61. (MIRA 14:9)

1. Laboratoriya sinteza vitaminov gruppy B Vsesoyuznogo nauchno-issledovatel'skogo vitaminnogo instituta.
(Amides) (Esterification) (Nicotinic acid)

FILIPPOVICH, Ye.I.; YEVSTIGNEYEVA, R.P.; PREOBRAZHENSKIY, N.A.

Dipyrrolylmethene series. Part 3: Synthesis of meso-substituted dipyrrolylmethenes. Zhur.ob.khim. 31 no.9:2968-2972 S '61. (MIRA 14:9)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Methene)

YEVSTIGNEYEVA, R.F.; ARKHIPOVA, L.I.; PREOBRAZHENSKIY, N.A.

Dipyrrolylmethene series. Part 4: Synthesis of asymmetric dipyrrolylmethenes. Zhur.ob.khim. 31 no.9:2972-2975 S '61. (MIRA 14:9)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Methene)

MIROSHNICHENKO, L.D.; YEVSTIGNEYEVA, R.P.; FILIPPOVICH, Ye.I.; PREOBRAZHENSKIY, N.A.

Dipyrrolylmethene series. Part 5: Infrared absorption spectra of meso-substituted dipyrrolylmethenes. Zhur.ob.khim. 31 no.9:2975-2983 S '61. (MIRA 14:9)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V. Lomonosova.

(Methene--Spectra)

BALYAKINA, M.V.; ZHDANOVICH, Ye.S.; PREOBRAZHENSKIY, N.A.

Synthetic studies in the field of vitamins B_6. Part 2: Synthesis of 2-methyl-3-hydroxy-4-aminomethyl-5-hydroxymethylpyridine. Zhur.ob.khim. 31 no.9:2983-2984 S '61. (MIRA 14:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut.
(Pyridoxime) (Pyridine)

MITROFANOVA, T.K.; SARYCHEVA, I.K.; IVASHCHENKO, S.P.; PYATNOVA, Yu.B.; SEREBRENNIKOVA, G.A.; PREOBRAZHENSKIY, N.A.

Lipides. Part 9: Synthesis of some triglycerides of soybean oil. Zhur.ob.khim. 31 no.9:2984-2986 S '61. (MIRA 14:9)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii imeni M.V.Lomonosova.

(Glycerides)

FILIPPOVICH, Ye.I.; YEVSTIGNEYEVA, R.P.; PREOBRAZHENSKIY, N.A.

Synthetic studies in the dipyrrylmethene series. Zhur.ob.khim. 30 no.10:3253-3257 O '61. (MIRA 14:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Dipyrrlmethene)

BAYNOVA, M.S.; RAZILEVSKAYA, G.I.; PREOBRAZHENSKIY, N.A.

Synthetic studies of cocainea. Part 7: Synthesis of the racemic stereoisomeric alkaloids cocaine, pseudococaine, allococaine, and allopseudococaine. Zhur.ob.khim. 30 no.10:3258-3261 O '61. (MIRA 14:4)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii.
(Alkaloids)

ZHDANOVICH, Ye.S.; CHEKMAREVA, I.B.; PREOBRAZHENSKIY, N.A.

Preparation of nitrile and amide of nicotonic acid. Zhur.ob. khim. 31 no.10:3272-3274 O '61. (MIRA 14:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut.
(Nicotinamide) (Nicotinonitrile)

SHVETS, V.I.; BOGOSLOVSKIY, N.A.; POLYACHENKO, V.M.; VOLKOVA, L.V.; SAMOKHVALOV, G.I.; PREOBRAZHENSKIY, N.A.

Synthesis of phospholipides containing residues of higher aliphatic polyene acids. Dokl. AN SSSR 140 no.4:851-854 O '61. (MIRA 14:9)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V. Lomonosova i Vsesoyuznyy nauchno-issledovatel'skiy vitaminnyy institut. Predstavleno akademikom A.N.Nesmeyanovym.
(Phosphatides) (Olefins)

SEREBRENNIKOVA, G.A.; MITROFANOVA, T.K.; KRAYEVSKIY, A.A.; SARYCHEVA, I.K.; PREOBRAZHENSKIY, N.A.

Total synthesis of soya-bean oil triglycerides. Dokl. AN SSSR 140 no.5:1083-1086 O '61. (MIRA 15:2)

1. Moskovskiy institut tonkoy khimicheskoy tekhnologii im. M.V.Lomonosova. Predstavleno akademikom A.N.Nesmeyanovym.
(Soy-bean oil)
(Glycerides)